

Translation

PATENT COOPERATION TREATY

PCT10/519681

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FI-3403	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2003/009247	International filing date (day/month/year) 22 July 2003 (22.07.2003)	Priority date (day/month/year) 22 July 2002 (22.07.2002)
International Patent Classification (IPC) or national classification and IPC C10G 25/00, 29/04, C01B 3/40, H01M 8/06		
Applicant IDEMITSU KOSAN CO., LTD.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒ Box No. I Basis of the report

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 20 January 2004 (20.01.2004)	Date of completion of this report 21 September 2004 (21.09.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2003/009247

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ The international application as originally filed/furnished

☐ the description:

pages _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

pages _____, as originally filed/furnished

pages* _____, as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP03/09247

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3, 7-10	YES
	Claims	1, 2, 4-6	NO
Inventive step (IS)	Claims	3	YES
	Claims	1, 2, 4-10	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Claims 1, 2, 4 and 6

The temperature and pressure described as desulfurizing conditions in document 1 cited in the ISR are identical with or similar to the temperature and pressure described as desulfurizing conditions in the examples of the present application. So, it is highly probable that the former desulfurizing conditions satisfy the desulfurizing conditions of the present application. Document 1 also describes that (1) a desulfurizing agent contains Ni and (2) the raw oil is a kerosene distillate fraction.

Furthermore, document 2 cited in the ISR also describes a similar matter. Moreover, document 2 also describes that the raw oil is a gasoline distillate fraction.

Claim 3

None of the documents cited in the ISR describes or suggests that desulfurization is performed in the absence of hydrogen. So, the subject matter of claim 3 appears to be novel and to involve an inventive step in view of the documents.

Claim 5

Document 2 also describes that a desulfurizing agent contains copper (see the claims).

Claims 7-10

Documents 1 and 2 do not describe that reforming treatment is performed after completion of desulfurization, to produce the hydrogen for fuel cells. However, document 3 describes that (1) reforming treatment is performed after completion of desulfurization, (2) the reforming treatment is either partial oxidation reforming treatment or steam reforming treatment, and (3) a catalyst containing ruthenium and zirconium oxide is used as the catalyst of the said treatment ([0014]-[0017]). So, a person skilled in the art could have easily performed these reforming treatments after the completion of desulfurization in documents 1 and 2.

List of cited documents:

Document 1: WO, 01-015804, A1 (Cosmo Research Institute), 8 March, 2001 (08.03.01)

Document 2: WO, 01-044407, A1 (Philips Petroleum Co.), 21 June, 2001 (21.06.01)

Document 3: JP, 2001-279274, A (Idemitsu Kosan Co., Ltd.), 10 October, 2001 (10.10.01)